

Controlled Delivery of DNA By Insertable Medical Devices

Abstract

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A medical device and method for transportation and release of a therapeutic agent into a mammalian body are disclosed. The medical device is coated with alternating layers of a negatively charged therapeutic agent and a cationic polyelectrolyte, following a controlled adsorption technique. The method is simple, with minimal perturbation to the therapeutic agent and uses clinically acceptable biopolymers such as human serum albumin. The amount of the therapeutic agent that can be delivered by this technique is optimized by the number of the layers of the therapeutic agent adsorbed on the surface of medical device. There is a washing step between alternate layers of the therapeutic agent and cationic polyelectrolyte carrier, so that the amount of the therapeutic agent on the insertable medical device represents the portion that is stably entrapped and adsorbed on to the medical device. The insertable medical device and method according to this invention are capable of reproducibly delivering therapeutic agent to a site in a mammalian body, and allow for a highly reproducible and controllable release kinetics of the therapeutic agent.